UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/862,446	05/23/2001	Gregory M. Evans	EVANS 7	8876

1444 7590 12/22/2005

BROWDY AND NEIMARK, P.L.L.C.
624 NINTH STREET, NW
SUITE 300
WASHINGTON, DC 20001-5303

EXAMINER	
PHAN, TRI H	

ART UNIT	PAPER NUMBER
2661	

DATE MAILED: 12/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/862,446	EVANS, GREGORY M.	
	Examiner	Art Unit	
	Tri H. Phan	2661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment/Arguments

1. This Office Action is in response to the Response/Amendment filed on August 24th, 2005. Claims 1-40 are now pending in the application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-7, 11, 22, 29, 31, and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Huscroft et al.** (U.S.5,568,486; hereinafter refer as '**Huscroft**').

- In regard to claims 1 and 31, **Huscroft** discloses, in Figs. 3-5 and 11 and in the respective portions of the specification about the *method and interface device for providing a gateway function between lines of a public switched telephone network 'PSTN' that carry digital hierarchy signals in a plurality of digital hierarchies and an asynchronous transfer mode 'ATM' backbone network that carries signals in ATM format* (see figs 3-4 and 11; for example see Abstract; col. 1, lines 7-15), *the interface device comprising a telephony transceiver operative to receive upstream digital hierarchy signals in a plurality of digital hierarchies from the PSTN*

('optical transmitter 16 and receiver 14' in figs. 3-4; 'O/E and E/O' in fig. 11; col. 6, lines 37-52); *a hierarchy converter operatively associated with the telephony transceiver and operative to convert at least some of said upstream digital hierarchy signals in a plurality of digital hierarchies to upstream signals in a single digital hierarchy distributed over a plurality of logical channels* ('Par/Ser 18' and Ser/Par' in fig. 5; col. 4, lines 40-45); *an inverse multiplexing unit operatively associated with the hierarchy converter and operative to inverse-multiplex said upstream signals in the single digital hierarchy distributed over a plurality of logical channels thereby to form upstream inverse-multiplexed digital hierarchy signals* (fig. 11; col. 11, lines 56-60; wherein, it is obvious that the PM5312 STTX splits the STS-12/STM-4 stream into four for inputting into the 'four ATM processors' 'PM5345 SUNI-155' by the "*inverse multiplexing unit*"); *an ATM framer operatively associated with the inverse multiplexing unit and operative to map at least some of the upstream inverse-multiplexed digital hierarchy signals into ATM cells thereby to form upstream signals in ATM format* ('transmit/receive AAL processor 12' in fig. 3-4; 'PM5345 SUNI-155' in fig. 11; for example see col. 3, lines 29-32; col. 8, lines 4-7); *and an ATM transceiver operatively associated with the ATM framer and operative to transmit said upstream signals in ATM format to the ATM backbone network* (for example see fig. 5 where the 'Drop Side Interface 34' transmits/receives the ATM cells).

- Regarding claims 2-3, 6 and 34, **Huscroft** further discloses, *wherein said digital hierarchy signals in a plurality of digital hierarchies comprise at least one of the following T1/E1 signals; T3/E3 signals; STS-N/STM-N signals, where N is an integer; and OC-M signals, where M is an integer* (for example see figs. 3-4, 11; col. 11, lines 56-60); *wherein said*

telephony transceiver comprises at least one of the following: an optical carrier 'OC' of level M 'OC-M' transceiver, where M is an integer; a DS1 transceiver; and a DS3 transceiver (for example see figs. 3-4, 11; col. 6, lines 37-52).

- In regard to claim 4 and 35, **Huscroft** further discloses, *wherein said hierarchy converter comprises at least one of the following: a demultiplexer; and a multiplexer* (see col. 4, lines 40-45); *wherein said converting step comprises the step of demultiplexing said at least some of said upstream digital hierarchy signals in a plurality of digital hierarchies thereby providing said upstream signals in a single digital hierarchy distributed over a plurality of logical channels* (see col. 4, lines 40-56).

- Regarding claims 5 and 7, **Huscroft** further discloses, *wherein said inverse multiplexing unit comprises a plurality of inverse-multiplexers ATM 'IAMs' each capable of multiplexing signals carried over a plurality of logical channels* (fig. 11; col. 11, lines 56-60; wherein, it is obvious that a plurality of PM5312 STTXs can be implement, instead of one PM5312 STTX as disclosed in fig. 11, for splitting the STS-12/STM-4 streams into a plurality of streams for inputting into a plurality of ATM processors 'PM5345 SUNI-155' by the "*inverse multiplexing units*"); *an ATM bus operatively associated with the inverse multiplexing unit and the ATM framer and operative to receive the upstream inverse-multiplexed digital hierarchy signals from the inverse multiplexing unit, and to provide the upstream inverse-multiplexed digital hierarchy signals to the ATM framer* (fig. 11 with the '*ATM bus*' for transferring the 'OOF, TOUT, TCLK,

RICLK, RIFP, RIN' signals from the PM5318 SIPO to PM5312 STTX and ATM processor PM5345 SUNI-155).

- In regard to claim 11, **Huscroft** further discloses, *wherein at least one of the hierarchy converter* ('Par/Ser 18' and Ser/Par' in fig. 5; col. 4, lines 40-45) *and the telephony transceiver* ('optical transmitter 16 and receiver 14' in figs. 3-4; 'O/E and E/O' in fig. 11; col. 6, lines 37-52) *is operative to provide a series of digital hierarchy signals to the ATM framer, and said ATM framer is operative to map said series of digital hierarchy signals into ATM cells thereby forming a series of signals in ATM format* ('transmit/receive AAL processor 12' in fig. 3-4; 'PM5345 SUNI-155' in fig. 11; for example see col. 3, lines 29-32; col. 8, lines 4-7).

- Regarding claims 22 and 29, **Huscroft** further discloses, *a communication device* (see figs. 3-4 and 11) *operatively associated with the PSTN* (the twisted pair 18 of fig. 4) and the ATM backbone network (through the transmit/receive AAL processor in figs. 3-4); ATM switching fabric (the ATM switch core of fig. 11).

- In regard to claim 33, **Huscroft** discloses about the method for claim 31 with the reverse direction, e.g. from ATM to SONET (see col. 3, lines 3-6).

4. Claims 8-10, 12-21, 23-25, 30, 32 and 36-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Huscroft et al.** (U.S.5,568,486) in view of **Chiu et al.** (U.S.6,597,689; hereinafter refer as '**Chiu**').

- Regarding claims 12 and 32, **Huscroft** discloses, in Figs. 3-5 and 11 and in the respective portions of the specification about the *method and interface* device for providing a gateway function between lines of a public switched telephone network 'PSTN' that carry digital hierarchy signals in a plurality of digital hierarchies and an asynchronous transfer mode 'ATM' backbone network that carries signals in ATM format (see figs 3-4 and 11; for example see Abstract; col. 1, lines 7-15), *the interface device comprising an ATM transceiver operative to receive downstream signals in ATM format from the ATM backbone network* (for example see fig. 5 where the 'Drop Side Interface 34' transmits/receives the ATM cells); *an inverse multiplexing unit operatively associated with the ATM framer and operative to inverse-multiplex at least some of said downstream digital hierarchy signals thereby providing downstream signals in a single digital hierarchy distributed over a plurality of logical channels* (fig. 11; col. 11, lines 56-60; wherein, it is obvious that the output from the 'four ATM processors' 'PM5345 SUNI-155' are combined into the STS-12/STM-4 stream by the PM5312 STTX, e.g. "*inverse multiplexing unit*"); *a hierarchy converter operatively associated with the inverse multiplexing unit and operative to convert said downstream signals in a single digital hierarchy distributed over a plurality of logical channels to downstream digital hierarchy signals in a plurality of digital hierarchies* ('Par/Ser 18' and Ser/Par' in fig. 5; col. 4, lines 40-45); *and a telephony transceiver operative associated with the hierarchy converter and operative to transmit said downstream digital hierarchy signals in a plurality of digital hierarchies from the PSTN* ('optical transmitter 16 and receiver 14' in figs. 3-4; 'O/E and E/O' in fig. 11; col. 6, lines 37-52). **Huscroft** does disclose about the "*ATM framer operatively associated with the ATM transceiver*

and operative to map the downstream signals in ATM format into downstream digital hierarchy signals" ('transmit/receive AAL processor 12' in fig. 3-4; 'PM5345 SUNI-155' in fig. 11; for example see col. 3, lines 29-32; col. 8, lines 4-7); but fails to explicitly disclose the ATM framer is an ATM "*UTOPIA*" framer. However, such implementation is known in the art.

For example, **Chiu** discloses about the "*ATM UTOPIA interface and framer*" in the line card (for example see fig. 8, 10; col. 30, line 52 through col. 31, line 48).

Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention was made to implement the "*ATM UTOPIA interface and framer*" as taught by **Chiu** in **Huscroft**'s system with the motivation being to allow the ATM traffic to pass between the switch card and line card, i.e. cell-based line card and frame-based line card, as disclosed in **Chiu**: col. 30, lines 52-61.

- In regard to claims 8 and 19, **Huscroft** further lacks what **Chiu** discloses, *wherein the ATM framer is an ATM UTOPIA framer* (for example see fig. 8, 10; col. 30, line 52 through col. 31, line 48) *and the ATM bus comprises a multi-UTOPIA bus* (see figs. 8 and 10; wherein, it is obvious that the bus 362 and 363 connected from the UTOPIA interface to the framer is a "*multi-UTOPIA bus*").

- Regarding claims 9, 20, 37 and 39, the combination of **Huscroft** and **Chiu** does discloses about the ATM SAR using AAL5 for supporting CBR, VBR, ABR, and UBR traffic classes ("*AAL*" in **Huscroft**: figs. 3-4; "*CBR*"; For example see **Chiu**: col. 28, lines 45-50; wherein the CBR is used for types of data where end systems require time synchronization and

response time, e.g. "*time relation between endpoints of connections*", as disclosed in **Chiu**: col. 5, lines 20-27), but fails to explicitly disclose about "*AAL1*". However, the ATM Adaptation Layer or AAL is software application which use to adapt or convert the different application data unit sizes relying on different application requirements into ATM cell format (For example see col. 63, lines 36-49). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention was made to combine the "*AAL1*" into the AAL software application of the **Chiu**'s ATM SAR, with the motivation being to improve the ability to convert different application data unit sizes with different requirements of AAL types, such as "*AAL1*".

- In regard to claims 10, 21, 38 and 40, **Huscroft** further lacks what **Chiu** discloses, the Frame relay/ATM (For example see Fig. 1). Thus, **Chiu** fails to explicitly disclose about the Frame-Relay/ATM internetworking "*circuitry*" in the IMAS device; however, it would have been obvious to the person of ordinary skill in the art at the time of the invention was made to combine the Frame-Relay/ATM internetworking "*circuitry*" in the other interface technologies of the IMAS device, with the motivation being to provide services for Frame Relay disclosed in Fig. 1.

- Regarding claims 13-14 and 17, **Huscroft** further discloses, *wherein said digital hierarchy signals in a plurality of digital hierarchies comprise at least one of the following T1/E1 signals; T3/E3 signals; STS-N/STM-N signals, where N is an integer; and OC-M signals, where M is an integer* (for example see figs. 3-4, 11; col. 11, lines 56-60); *wherein said telephony transceiver comprises at least one of the following: an optical carrier 'OC' of level M*

'OC-M' transceiver, where M is an integer; a DS1 transceiver; and a DS3 transceiver (for example see figs. 3-4, 11; col. 6, lines 37-52).

- In regard to claims 15-16 and 36, **Huscroft** further discloses, *wherein said hierarchy converter comprises at least one of the following: a demultiplexer; and a multiplexer* (see col. 4, lines 40-45); *wherein said inverse multiplexing unit comprises a plurality of inverse-demultiplexers ATM each capable of demultiplexing signals carried over a plurality of logical channels* (see fig. 11; col. 11, lines 56-60; wherein, it is obvious that the PM5312 STTX splits the STS-12/STM-4 stream into four for inputting into the 'four ATM processors' 'PM5345 SUNI-155', and vice versa, by the "*inverse multiplexing unit*").

- Regarding claim 18, **Huscroft** further discloses, *an ATM bus operatively associated with the ATM framer and the inverse multiplexing unit and operative to receive the downstream digital hierarchy signals from the ATM framer, and to provide the downstream digital hierarchy signals to the inverse multiplexing unit* (fig. 11 with the '*ATM bus*' for transferring the 'OOF, TOUT, TCLK, RICLK, RIFP, RIN' signals from the PM5318 SIPO to PM5312 STTX and ATM processor PM5345 SUNI-155).

- Regarding claims 23-25 and 30, **Huscroft** further discloses, *a communication device* (see figs. 3-4 and 11) *operatively associated with the PSTN* (the twisted pair 18 of fig. 4) and the ATM backbone network (through the transmit/receive AAL processor in figs. 3-4); ATM switching fabric (the ATM switch core of fig. 11).

5. Claims 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Huscroft et al.** (U.S.5,568,486) as applied to claims 1 and 12 above, and further in view of **Swerdlow** (U.S.5,995,504).

- In regard to claims 26-28, **Huscroft** discloses the method of claim 1 as disclosed in part 3 above of this office action, but lacks what **Swerdlow** discloses about the "*DACS*". However, such implementation is known in the art.

For example, **Swerdlow** discloses about the system and method for controlling multiplexers and cross-connects on the telecommunications network (For example see Figs. 2, 9-10; Abstract); wherein the cross-connect machines DCS 3/1, DCS 1/0 interchange the bit rate channels ("*DACS*"; For example see Figs. 2, 9; col. 1, lines 41-57; col. 3, lines 41-46) and the SONET Mux OC-48, OC-3 multiplexes the DS signals into STS signals at the feeder and breakout sites ("SONET multiplexer"; For example see Fig. 2; col. 2, lines 4-46; col. 3, lines 47-67).

Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention was made to implement the invention as taught by **Swerdlow** into the **Huscroft**'s system, with the motivation being to improve the ability to control multiplexers and cross-connects by interchanging between different bit rates and mux the signals into OC signals for transmitting over in the telecommunications network disclosed in **Swerdlow**: col. 1, lines 51-57.

Response to Amendment/Arguments

6. Applicant's arguments filed on August 24th, 2005 with respect to claims 1-40 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7 The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Christie et al. (U.S.6,631,133) and **Quesada et al.** (EP 0 917 394) are all cited to show devices and methods for improving the transmission between different protocol networks architectures, which are considered pertinent to the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tri H. Phan, whose telephone number is (571) 272-3074. The examiner can normally be reached on M-F (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau T. Nguyen can be reached on (571) 272-3126.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(571) 273-8300

Hand-delivered responses should be brought to Randolph Building, 401 Dulany Street, Alexandria, VA 22314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office, whose telephone number is (571) 272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BRIAN NGUYEN
PRIMARY EXAMINER

Tri H. Phan
December 16, 2005